

Developing a New Research Data Infrastructure for Japanese Historical Materials

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The COVID-19 pandemic has restricted access to original historical documents that have been the foundation of humanities research. Providing digital image data is the most effective method for overcoming this critical situation; it is increasingly necessary to strengthen the ability to disseminate information online (Yamada et al., 2021). However, individual researchers undertake research in humanities. Therefore, when the research results are published, the data investigated and accumulated during the research process are rarely shared in a verifiable form (Shibutani et al., 2020).

Against this background, the Japan Society for the Promotion of Science (JSPS) launched the Program for Constructing Data Infrastructure for the Humanities and Social Sciences in FY2018, intending to build a comprehensive system for sharing and using

data in humanities and social science research across disciplines and countries. It opened the Japan Data Catalog for the Humanities and Social Sciences (JDCat) in July 2021, a batch searchable data catalogue of metadata in humanities and social sciences (Yamada et al., 2021). Furthermore, the Historiographical Institute (HI) of the University of Tokyo fostered an information environment to promote sharing and utilisation of humanities research data through the JSPS programme in FY2019–2022. Our poster discusses HI's activities to construct a data structure and its operations in Japanese history for long-term utilisation and future issues related to multidisciplinary links.

The HI is compiling information about data preservation of historical materials titled 'Progress Management System for Historical Materials' Digitalization', based on the Reference Model for an Open Archival Information System. All data were subjected to daily and annual remote backups. The terms and conditions for using the image data were established through coordination with the institutions holding the historical materials. Through the JSPS program, HI established terms and conditions for using image data from HI materials for images of historical materials of the Imperial Family and court archives, documents of the Miyakonjo Shimazu Family, Toji Monjo (historical documents of the Toji Temple stored in the Lake Biwa Museum), and documents related to Iwakura Tomomi (a Japanese statesman during the Bakumatsu and Meiji periods), already set as open data and released them in the HI-CAT Plus database for digital image viewing. HI also distributes data inside and outside Japan, promoting collaboration with other countries and developing an English translation database (Figure 1).

No.	Date (Japanese Calendar)	Main Title
1	1853.4.19 (1)	Commander Matthew Calbraith Perry, commander of the US East India Squadron, comes to Naha (Naha) on the way to Japan, leading four warships.
2	1853.4.19 (2)	Sirikan Mabuni (a US sailor) of the Perry's US East India Squadron visits the US Flagship Susquehanna. Fleet commander Matthew Calbraith Perry declares a desire to visit the Shuri royal palace and requests that he be permitted to come ashore and take a walk.
3	1853.4.19 (3)	US Fleet Commander Matthew Calbraith Perry, Lieutenant John R. Goldsborough, Interpreter Samuel Wells Williams and others come to the Tomari Kikan meeting hall and have a meal. A meal is then held in the house of the commander.
4	1853.4.19 (4)	Sirikan Mabuni (a) of the Perry's US East India Squadron, visited about US Fleet Commander Matthew Calbraith Perry entering Shuri castle, then to comment this by meeting Perry to a reception at the Naha Kikan meeting hall instead. Perry does not come to the reception. Mabuni then visits the American ships and expresses his sincere feelings on the matter, but he is not heard.
5	1853.4.19 (5)	US Fleet Commander Matthew Calbraith Perry, accompanied by more than 200 soldiers, forces his way into the Shuri royal palace, where he is met by the Sirikan and Fushiku. Perry expresses a hope for friendly relations, and tells them that he will soon leave and then return. The Perry's government officials then gather Perry in the Shuri royal palace and hold a reception for him.
6	1853.4.19 (6)	The commander of the US East India Squadron, Matthew Calbraith Perry, leads the Flagship Susquehanna and the Sarragen in leaving Naha (Naha) for the Ogasawara Islands.
7	1853.4.19 (7)	US Fleet Commander Matthew Calbraith Perry leads two warships into Fuzumi Port (Port Lloyd, Port Island) in the Ogasawara Islands. He then purchases land for a coal yard from one of the American residents, Nathaniel Smith, and asks him to establish a colonial government.
8	1853.4.19 (8)	US Fleet Commander Matthew Calbraith Perry completes his exploration of the Ogasawara Islands and returns to Naha on the 17th. On this day, Sirikan Simizu (a) (Sirikan Kikari) and others of the Okinawa government are invited to the Flagship Susquehanna for a banquet.
9	1853.4.19 (9)	US Fleet Commander Matthew Calbraith Perry leads four warships, reporting Naha and heading for Uraga.
10	1853.4.19 (10)	Matthew Calbraith Perry, commander of the US East India Squadron, comes to Uraga with the Flagship US Susquehanna, as well as the USS Mississippi, USS Plymouth, and USS Saratoga. Uraga (Uraga) Kumamoto (Kumamoto) (Kumamoto) (Kumamoto) and others inquire as to the American's intentions, inform them of the national law, and try to prevent them from Nagasaki, but Perry does not oblige.
11	1853.4.19 (11)	US Fleet Commander Matthew Calbraith Perry comes ashore at Naha with his staff officers. Commodore Perry (Perry) and US Fleet Commander Perry (Perry) meet him and receive the flag from him. US President Millard Fillmore (Fillmore) expresses that he would like to return the following spring and asks for a response. Fillmore and Kanagawa demand that the land where Asia and Oahu (Oahu) grant the use.

Figure 1. "Summary database of the Ishin Shiryo" as the English translation database

JDCat enables the cross-search of data collected, organised, and provided by base institutions in the project (Figure 2). The JDCat metadata schema was designed based on the DDI (Data Documentation Initiative), an international standard widely used in social sciences, and the JPCOAR (Japan Consortium for Open Access Repositories) schema for metadata exchange in institutional repositories (Shibutani et al., 2020). Therefore, developing a schema applicable to the humanities field was necessary. While accumulating, providing, and analysing historical research data such as catalogues and images, HI has been collecting relevant research information (e.g. microscopic images and analysis results) and linking them. Based on this knowledge, we clarify the interpretation of each item in the JDCat metadata schema, add information on text specific to humanities data, and examine methods for describing geographic and temporal ranges. Our poster illustrates specific repositories and examples of metadata exchange.

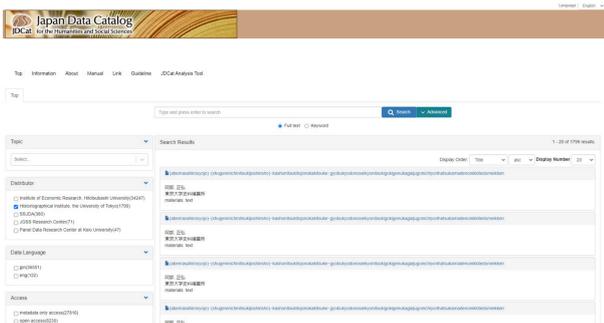


Figure 2. Metadata of HI's historical materials in JDCat

Previous systems related to JDCat include Japan Search, Europe, and Time Machine Europe (e.g. Kitamoto, 2020). JDCat differs from these systems in its pioneering ability to cross-search information from various research datasets in humanities and social sciences. Users can cross-search for data that match their research themes; data providers can use the repository of their research projects as an operational repository (Shibutani et al., 2020).

Building a system and encouraging Japanese historical researchers to use it is essential so that the research related to collecting, managing, and analysing Japanese historical data becomes an indispensable research infrastructure for Japanese history. In humanities, data rarely become obsolete, and it is critical to perpetuating data. Moreover, in the case of research data management, it is necessary to aim for an adequate data provision and sharing environment in the research flow, such as research, compilation, and publication of research results (Yamada et al., 2021). These results may be fed back to archival data as research resources, thus achieving a distribution in which the archival data circulate that can advance the digital transformation of Japanese historical research. Our poster will discuss setting up an environment for data provision and sharing and the relationship between our project and other general research data management (RDM) areas. Additionally, we will show a long-term strategy for future collaborations, funding, and others to preserve infrastructure and ensure its uptake.

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